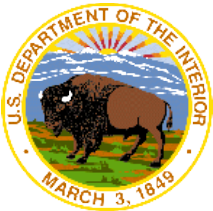


U.S. Arctic Outer Continental Shelf Energy Exploration, Development, & Production

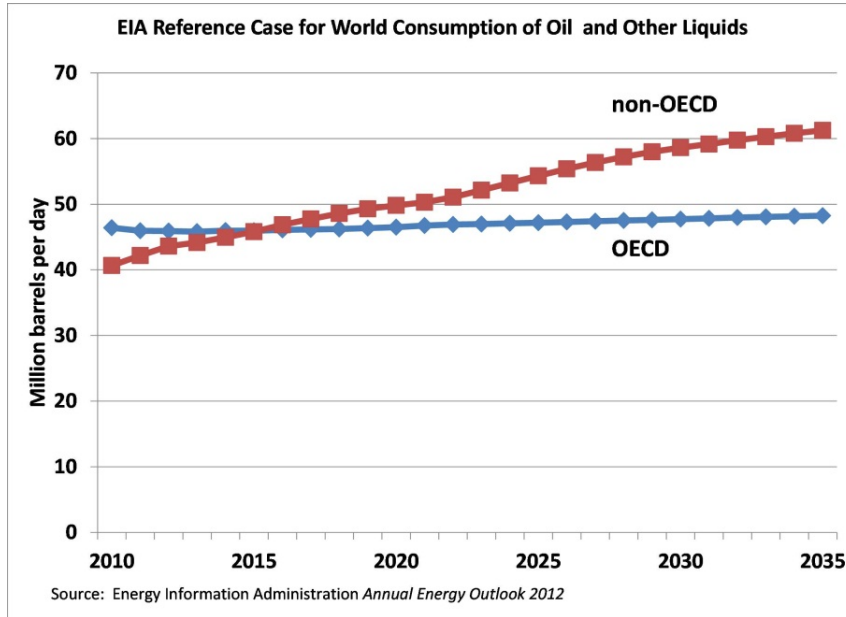
**6th Symposium
on the
Impacts of an Ice-Diminishing Arctic
on Naval and Maritime Operations**
July 14-16, 2015
Washington, D. C.

Dr. James (Jim) Kendall
Regional Director, Alaska OCS Region
Department of the Interior
Bureau of Ocean Energy Management



Meeting Global Demand

Potential polar marine routes could support efforts to construct new Arctic infrastructure



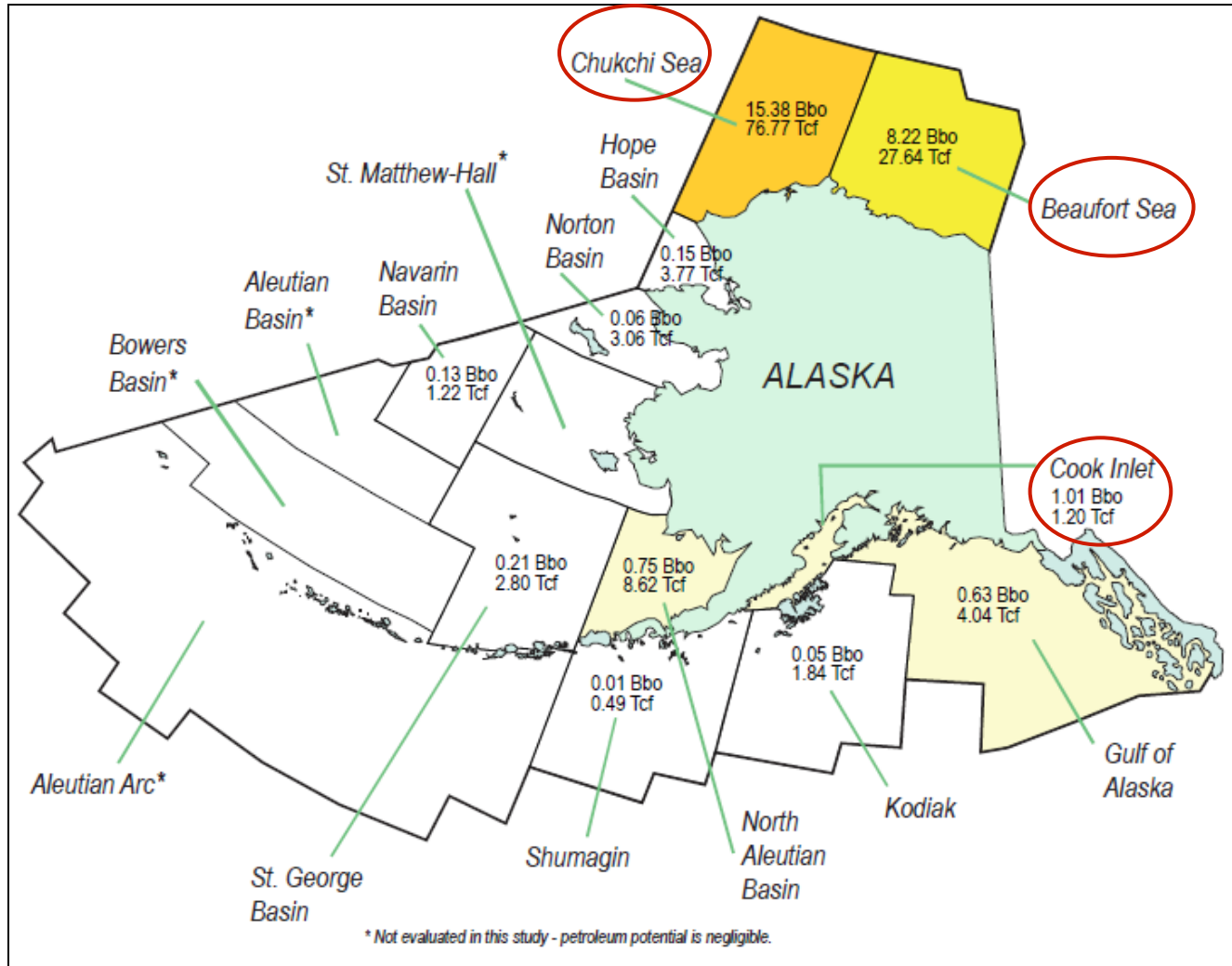
*The Organization for Economic Co-operation and Development (OECD)

...to meeting rising global demand for petroleum products.

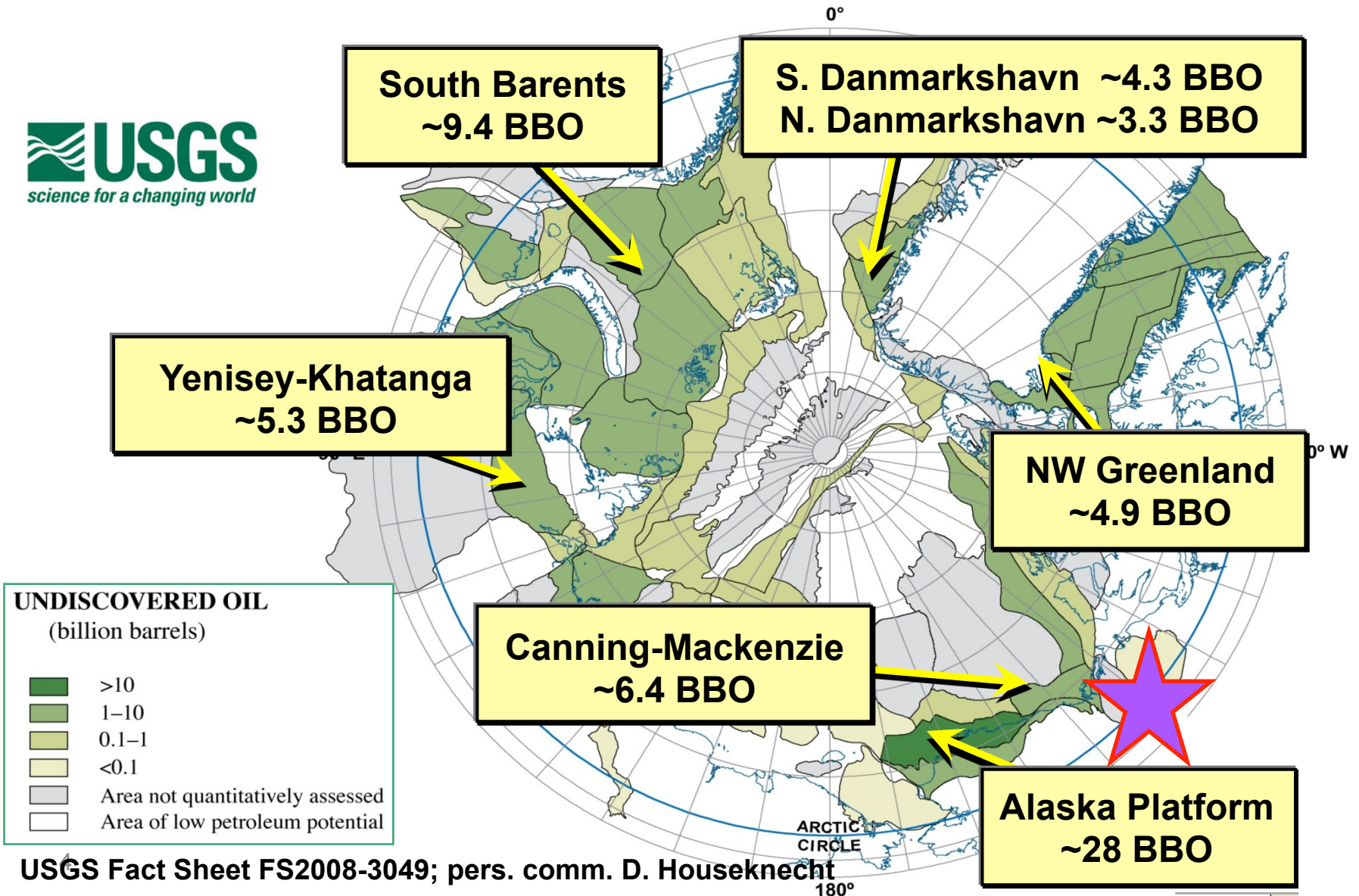


OCS Oil and Gas Resources

2011 Assessment of Undiscovered Technically Recoverable Oil & Gas Resources



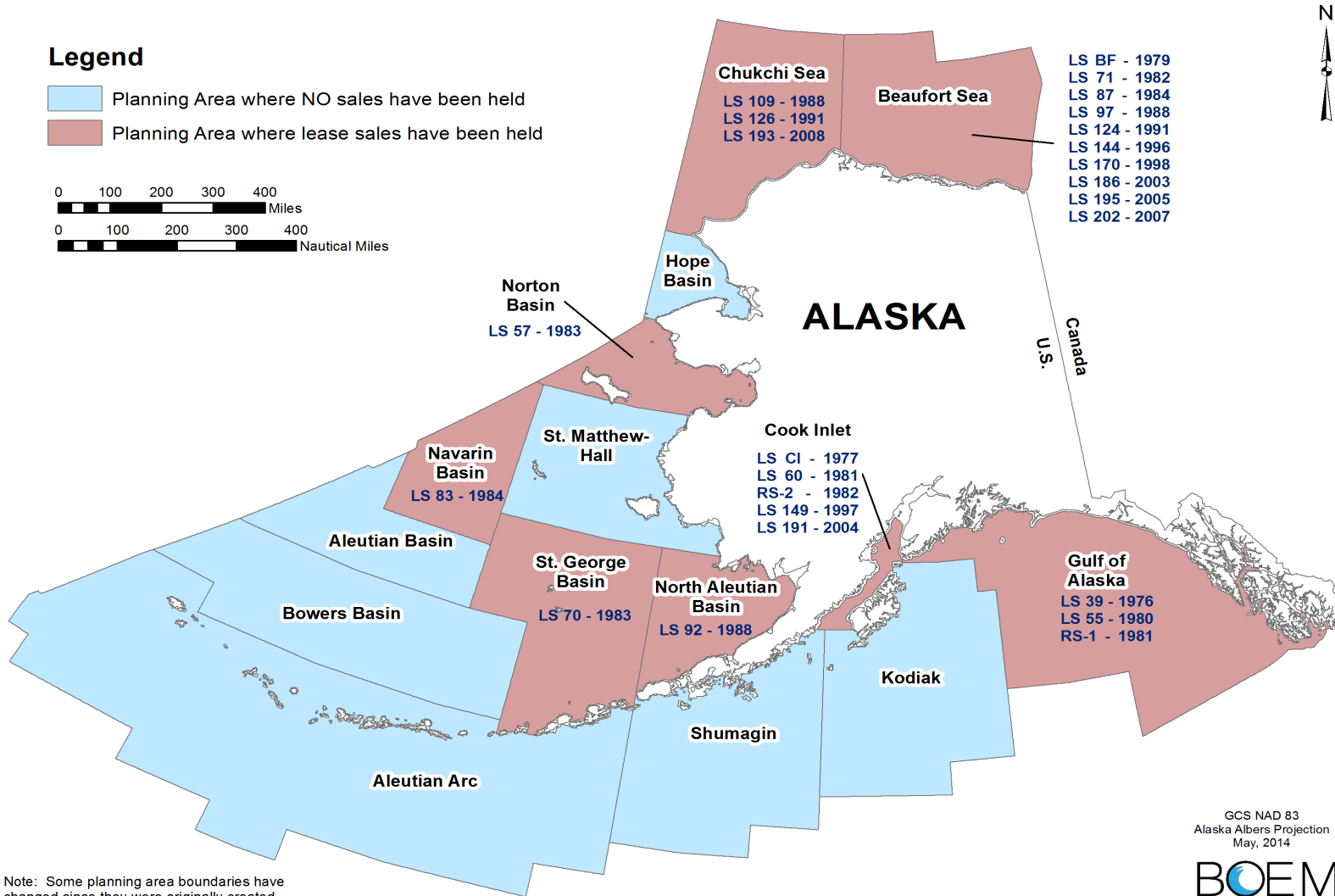
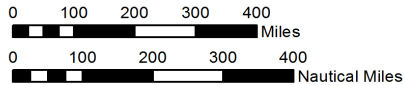
USGS Circum-Arctic Assessment – Undiscovered Oil Potential by Assessment Unit



Historic OCS Lease Sales

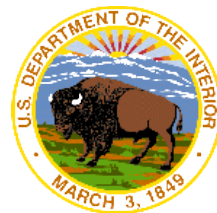
Legend

- Planning Area where NO sales have been held
- Planning Area where lease sales have been held



Note: Some planning area boundaries have changed since they were originally created. This map shows the current boundaries only.

GCS NAD 83
Alaska Albers Projection
May, 2014

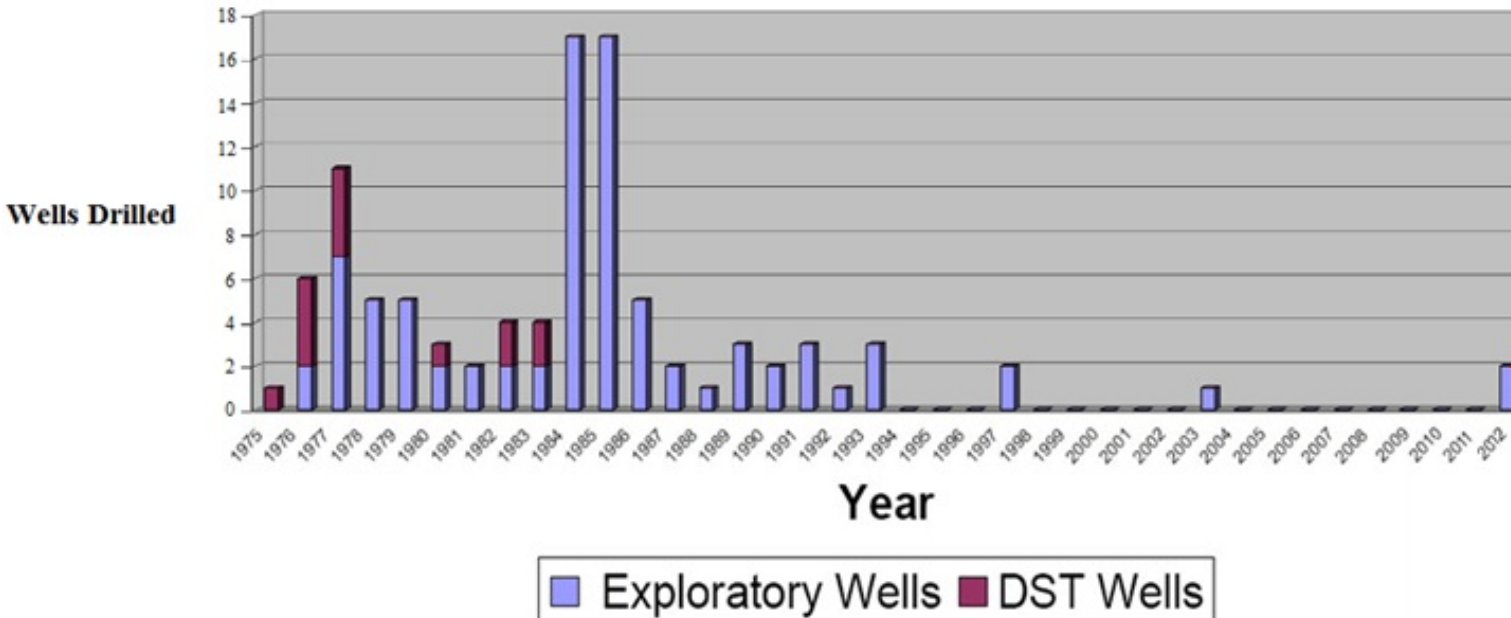


OCS Exploratory Drilling, Not New in Alaska

**86 Exploration Wells and 14 Deep Stratigraphic Test Wells
have been drilled on the Alaska OCS**

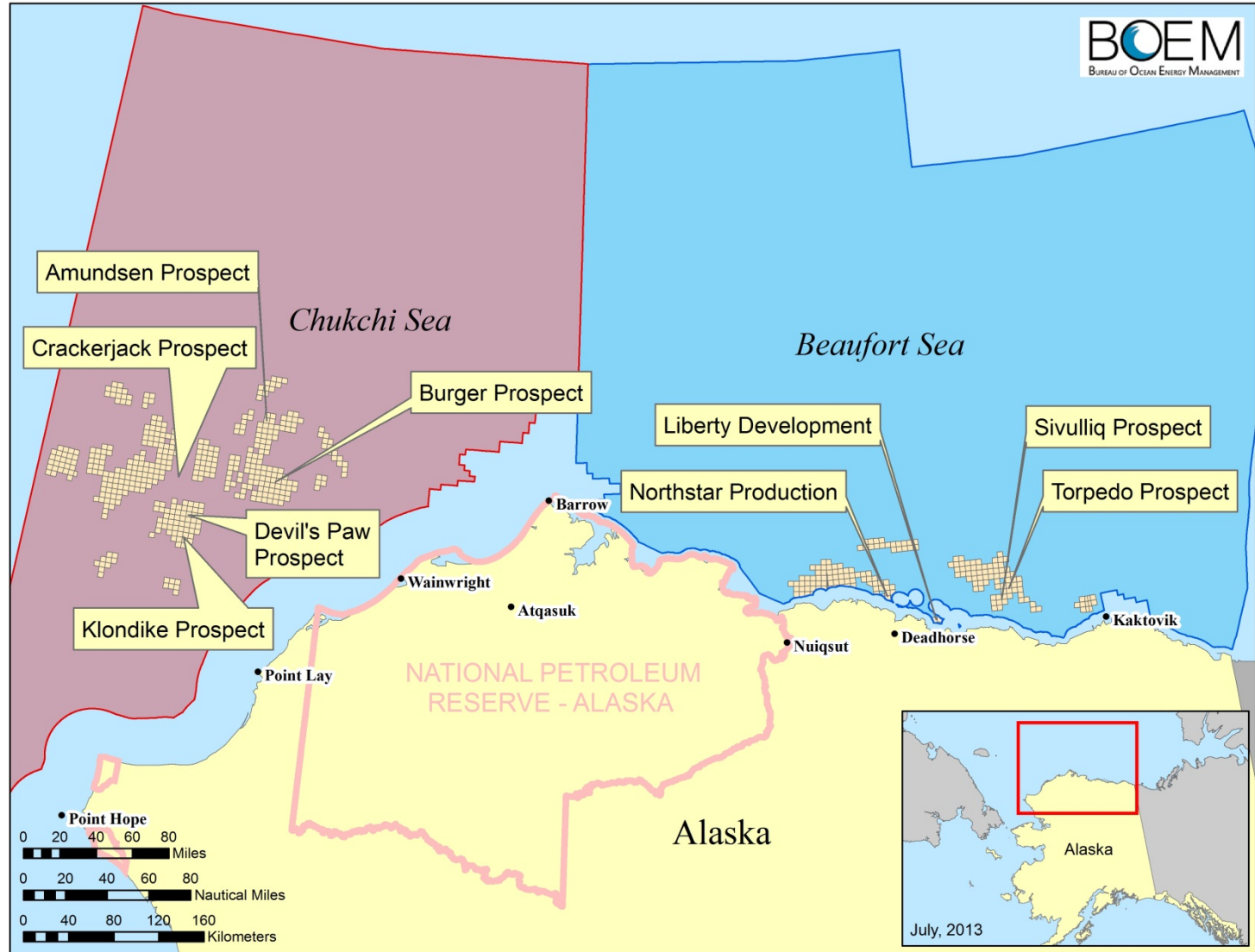
Beaufort Sea	31	St. George Basin	10
Chukchi Sea	6	Cook Inlet	13
Norton Sound	6	Gulf of Alaska	12
Navarin Basin	8		

Alaska OCS Exploration Wells 1975 - 2012



Two shallow top holes in 2012 – one in the Beaufort Sea and one in the Chukchi Sea.

Current OCS Leases and Exploration Prospects, Development, and Production



Over 50 on-going Environmental Studies researching (~\$70 million):

- Physical, Biological, & Chemical Oceanography
- Fates and Effects
- Biological Resources
- Protected Species
- Traditional Knowledge
- Atmospheric/Air Quality
- *INTEGRATED & INTERDISCIPLINARY!*



BOEM's Environmental Studies Program (ESP) develops, conducts and oversees world-class scientific research specifically to inform decisions regarding development of OCS energy & mineral resources.

BOEM has invested OVER \$450 million studying the OCS environment offshore Alaska, and developed more than 1,000 reports & peer reviewed publications

**BOEM actively seeks
TK / TEK** to complement
its use of Western
science to make better
decisions

Photo by Emily Brower

BOEM OCEAN SCIENCE

THE SCIENCE & TECHNOLOGY JOURNAL OF THE BUREAU OF OCEAN ENERGY MANAGEMENT

VOLUME 9 ISSUE 2 • APRIL/MAY/JUNE 2012

Special Issue on **Traditional Knowledge**

Science in Transformation

**Traditional Knowledge
and Sociocultural Studies**

**Integrating Traditional
Knowledge into Biological
Resource Studies**

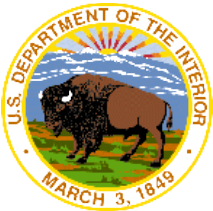
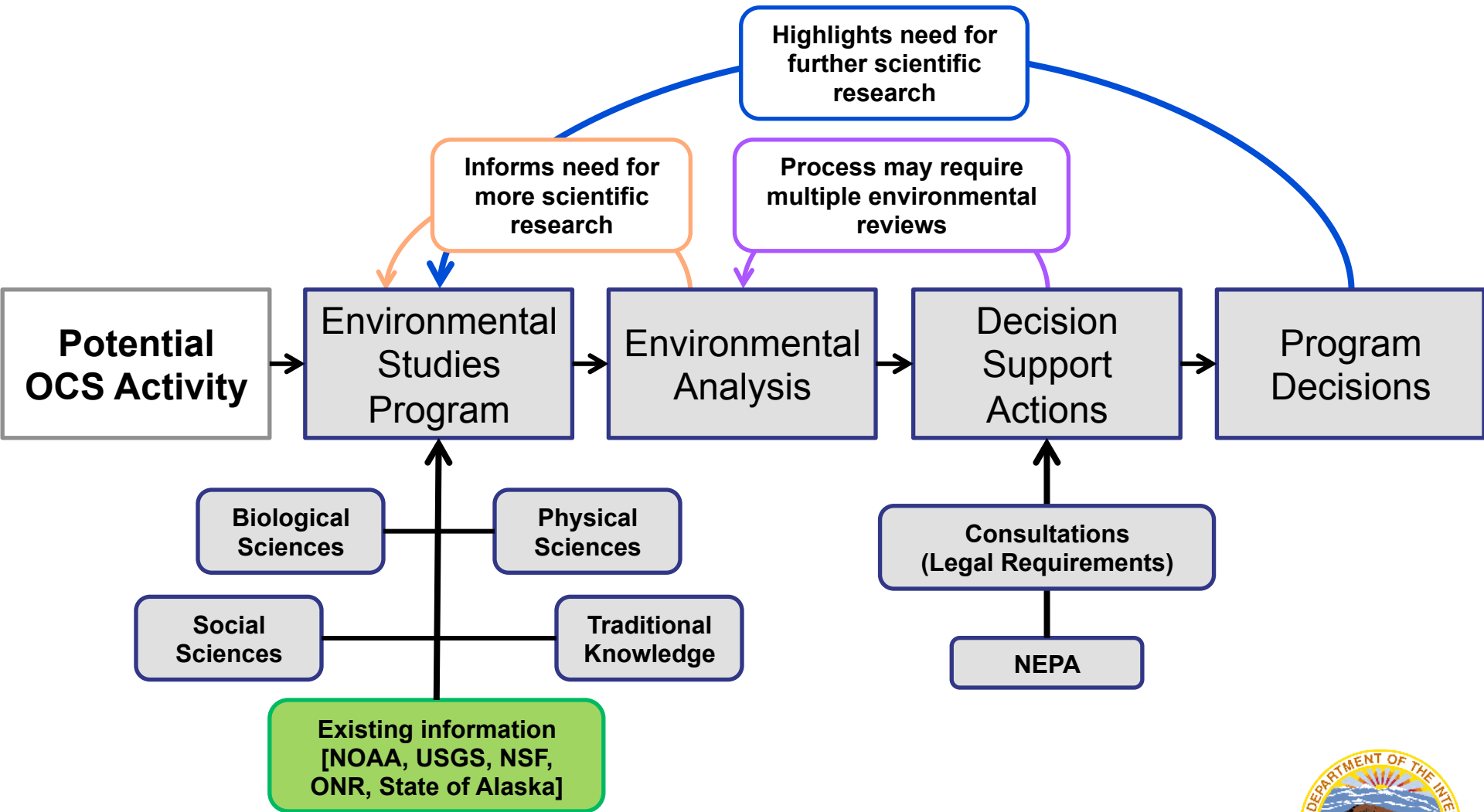
**Cultural Landscapes:
Traditional Knowledge
Across the Pacific Rim**

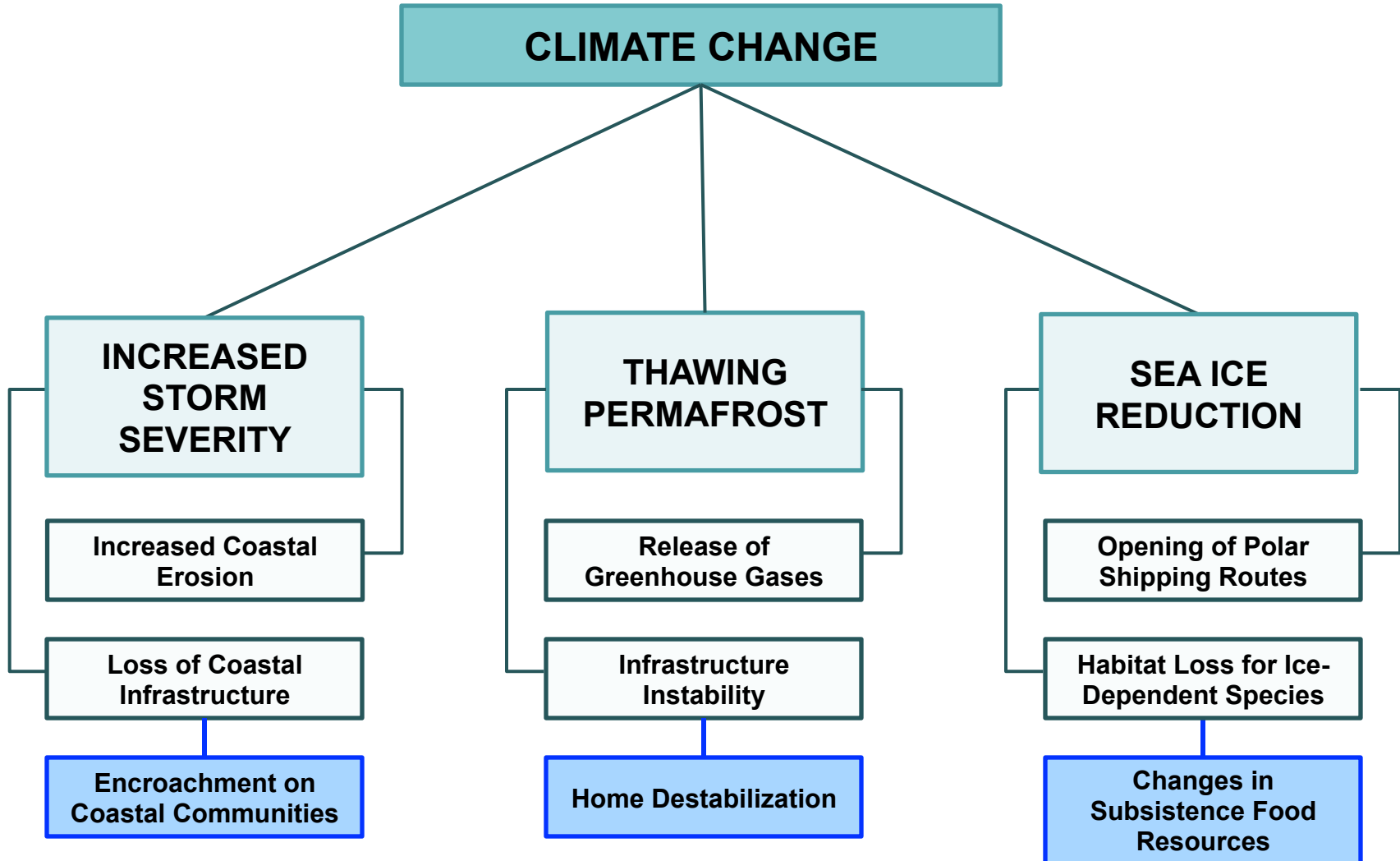
**Fenton Rexford (Interview),
Tribal Administrator of the
Native Village of Kaktovik**

**Where Do We
Go From Here?**



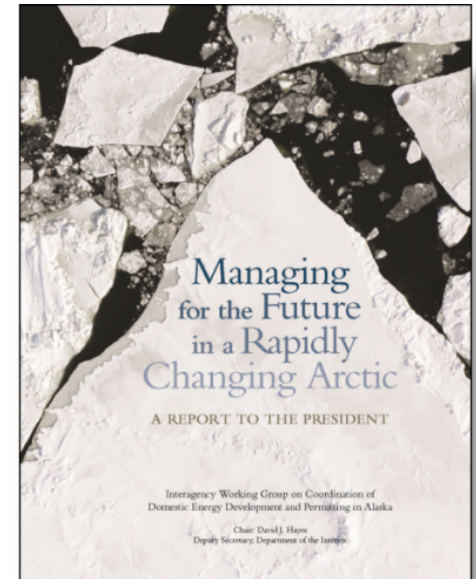
An Adaptive, Integrated, Ecosystem-based Approach to Science-informed Decision-making



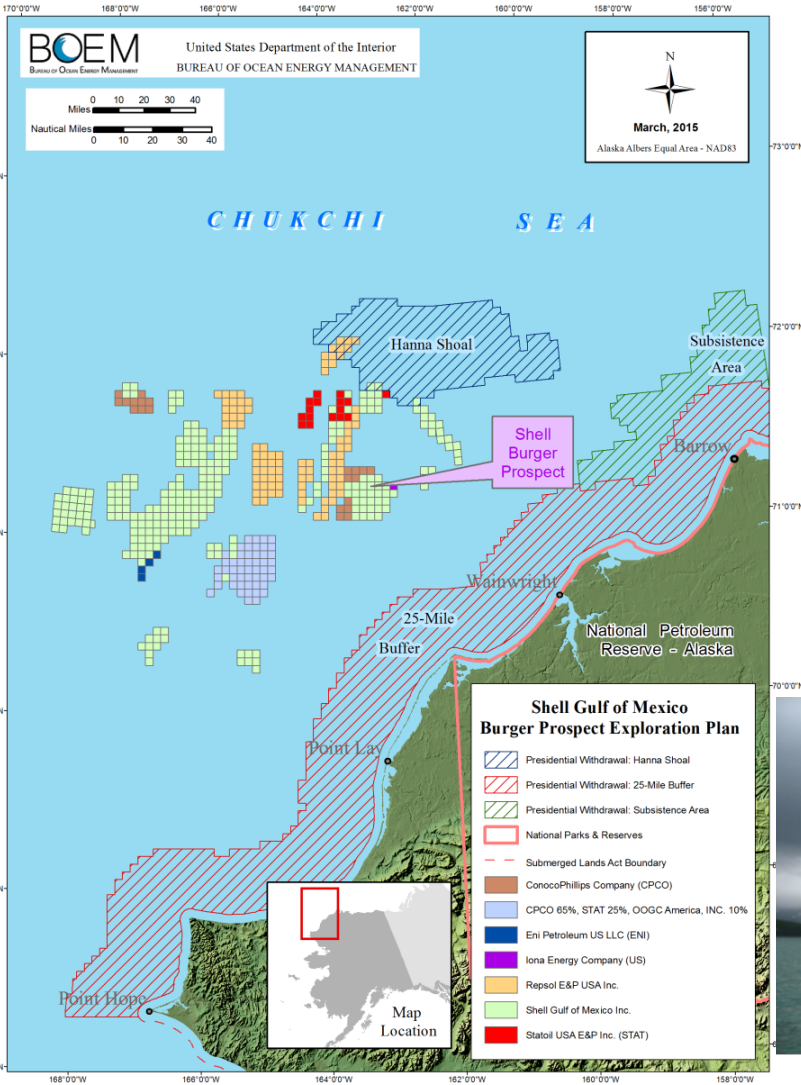


Applying Principles of IAM to Decisions:

- **A whole-of-government approach in coordinating development and conservation strategies in the U.S. Arctic to improve efficiency, operational certainty, and sustainability:**
 - Information about marine and terrestrial ecosystems, resources, and U.S. Arctic communities is available and widely shared;
 - Direct and meaningful engagement with partners and stakeholders;
 - Scientific information and traditional knowledge to ensure management decisions promote productive and sustainable ecosystems;
 - Landscape-scale strategies to inform development, conservation, restoration, and mitigation planning;
 - The cumulative impacts of human activities and management decisions in the U.S. Arctic; and
 - Climate change impacts upon the natural and human environment in the U.S. Arctic
- **Increasing international coordination with other Arctic nations, as appropriate.**



Shell Chukchi Sea Exploration Plan



EP “Conditionally” Approved – **May 11, 2015**

Operational Period

- July 1 to Oct. 31 each year until complete

Six Lease Blocks

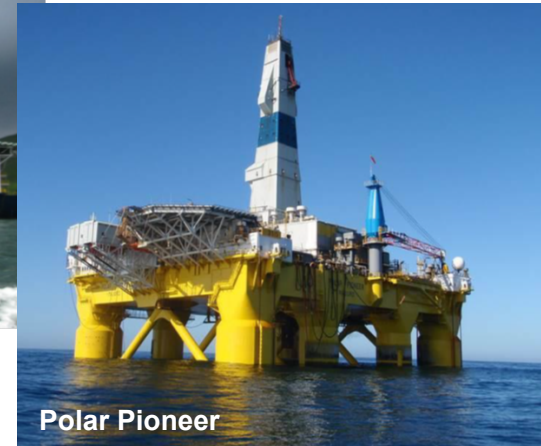
- Six Well Locations

Two Floating Drilling Units

- Noble Discoverer
- Transocean Polar Pioneer

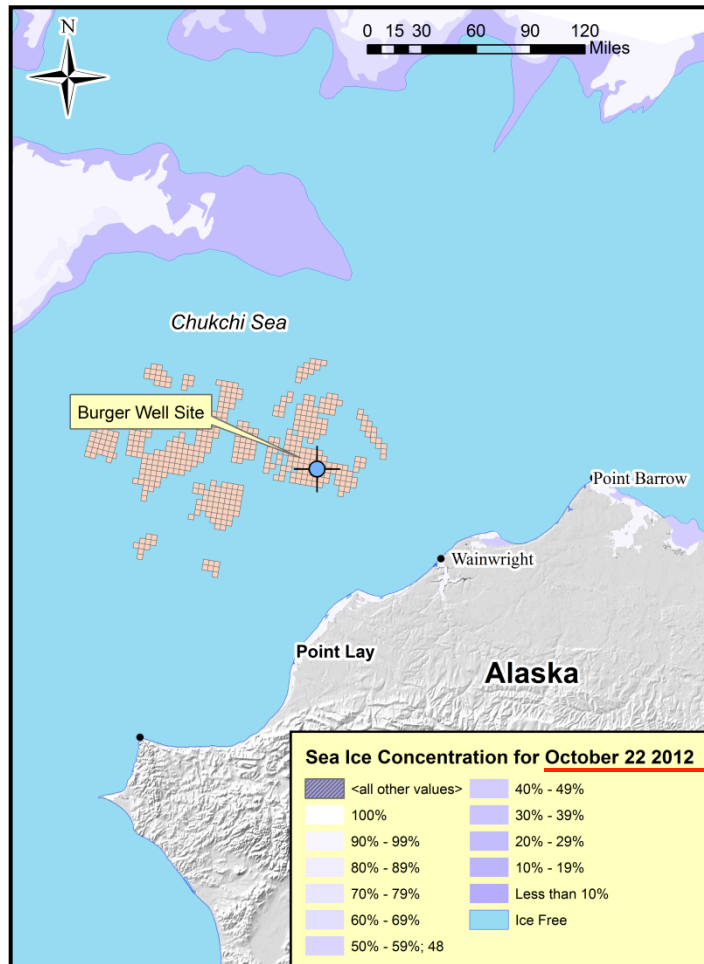
Support Vessels

- Aircraft - 7
- Marine Vessels - 29

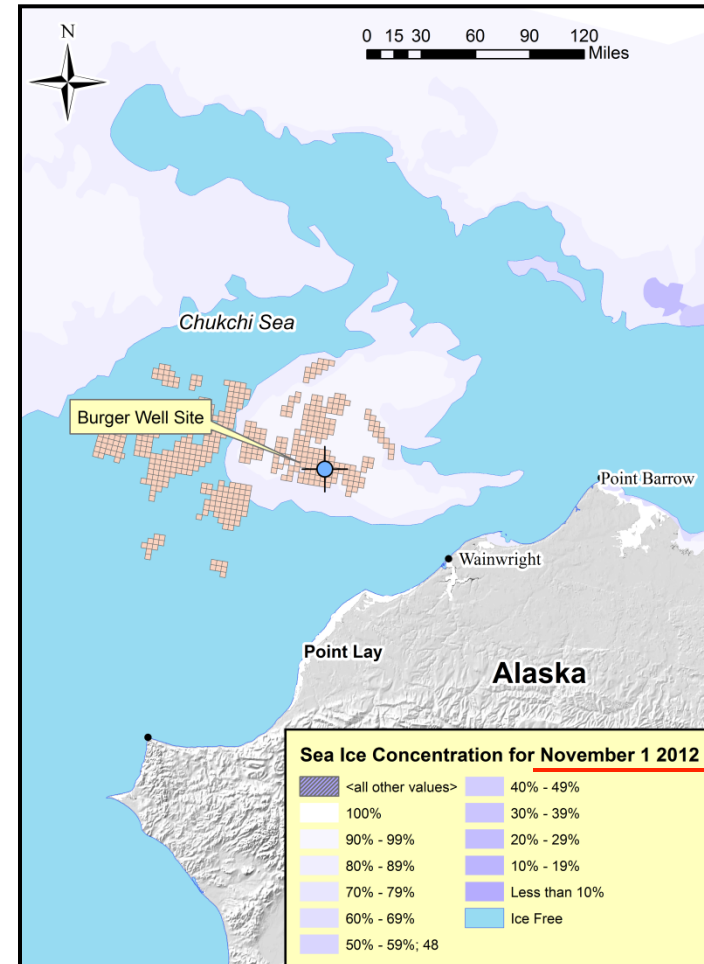


Polar Pioneer

Late Season Exploratory Drilling Hiatus



- BOEM limited drilling into hydrocarbon zones 30+ days prior to ice encroachment at Chukchi Sea drill site.
- Each year, BOEM estimates ice encroachment using hindcasting techniques, and establishes a “trigger date” for the drilling hiatus
- Consistent with adaptive management, BOEM may refine the “trigger date” in light of real time sea ice forecasting



Total Traffic vs. Energy Related

2008–2013 U.S. Arctic Activity

Bering Strait Transits

2008 = 220
2009 = 280
2010 = 430
2011 = 410
2012 = 480
2013 = 440

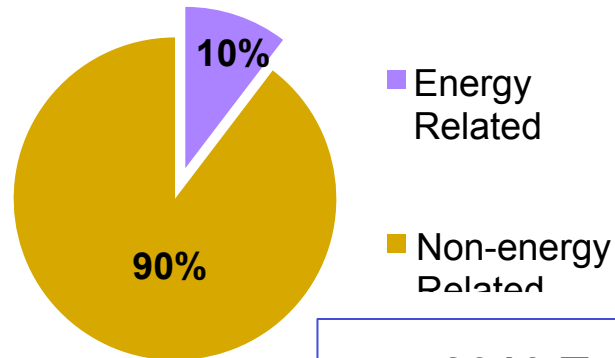
Vessels in U.S. Arctic

2008 = 120
2009 = 130
2010 = 160
2011 = 190
2012 = 250
2013 = 240

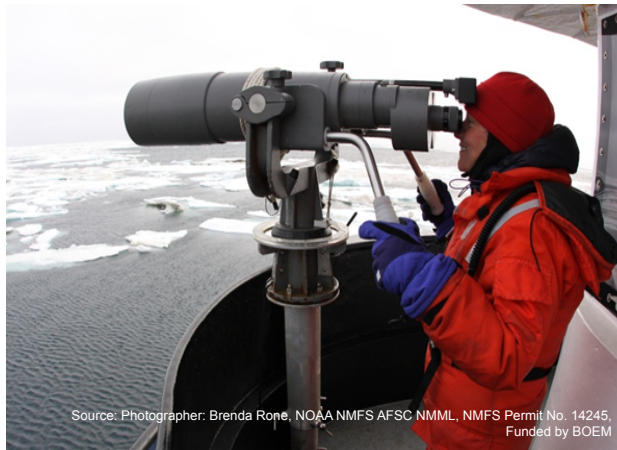
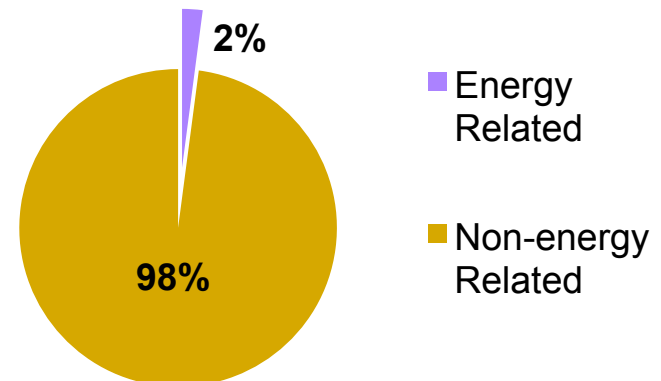
Source: USCG District 17, Sector Anchorage Overview Presentation; February 10, 2014.

BOEM lease operations require on-site monitoring and mitigation measures for marine mammals

2012 Total Estimated U.S. Arctic Vessel Traffic



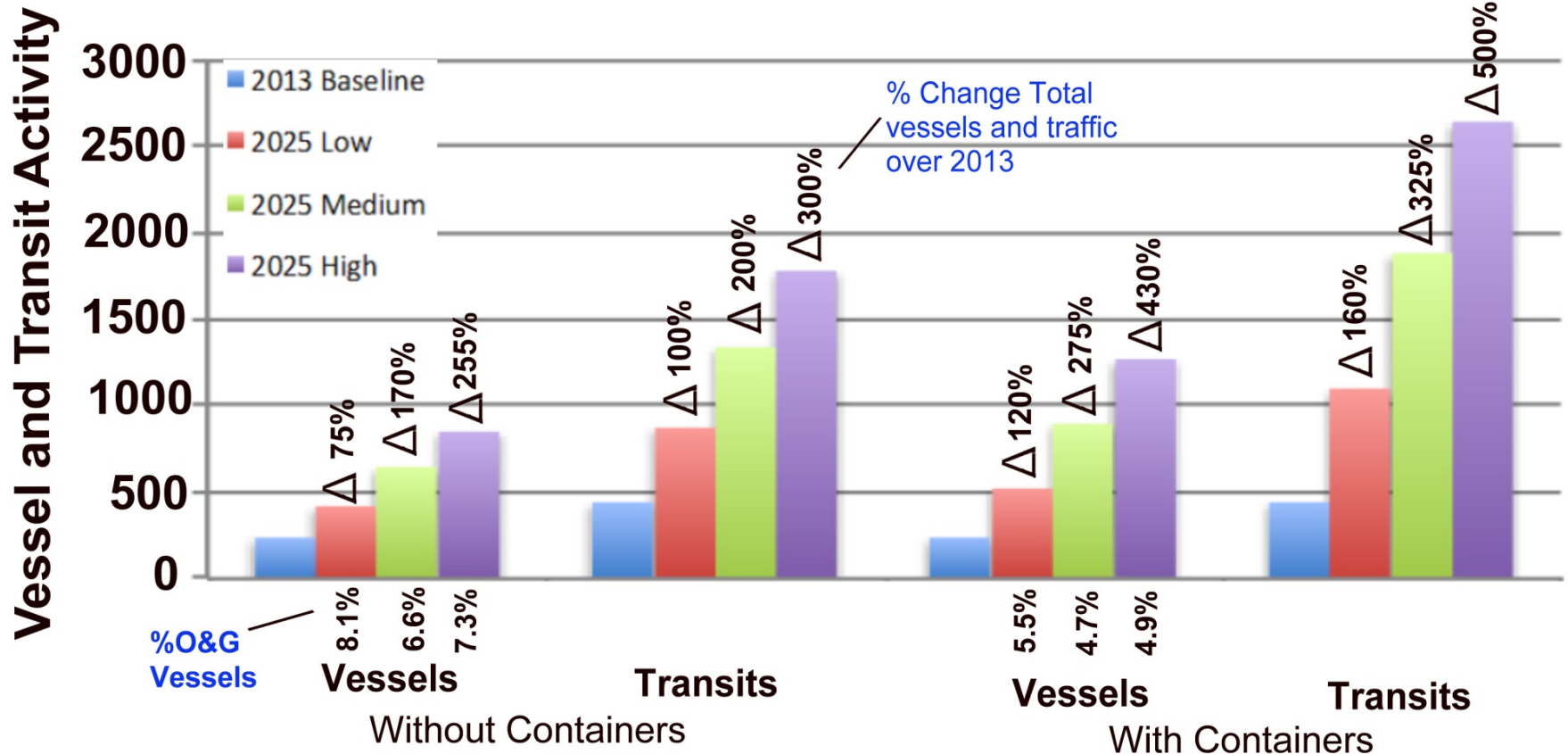
2013 Total Estimated U.S. Arctic Vessel Traffic



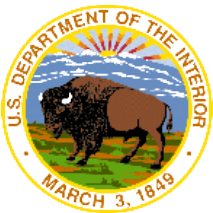
Source: Photographer: Brenda Rone, NOAA NMFS AFSC NMML, NMFS Permit No. 14245, Funded by BOEM

Total Traffic vs. Energy Related

2025 Scenarios Bering Strait Vessels and Transits for the U.S. Arctic

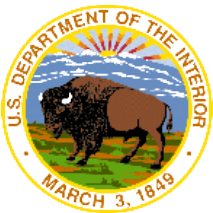


Low Scenario: O&G Vessels, 6.5 to 8.1 % of the total
Medium Scenario: O&G Vessels, 4.7 to 6.6 % of the total
High Scenario: O&G Vessels, 4.9 to 7.3 % of the total



Under Regulatory Review:

- **2014 Hilcorp Development and Production Plan (DPP)**
 - Artificial Gravel Island in the Beaufort Sea, 5.6 miles offshore
 - Under completeness review by BOEM
 - Once “Deemed Submitted” Public Process
 - EIS preparation (pending DPP is “Deemed Submitted”)
 - Island construction proposed to start in Winter 2017-2018
 - Proposed buried pipeline
 - Proposed production to begin in 2019-2020.



Comparable Beaufort Sea Projects

Nikaitchuq Island

Drillsite

Constructed: 2011

Work Area Acres: 10

Water Depth: 8'

Oooguruk Island

Drilling & Production

Constructed: 2007

Work Area Acres: 6

Water Depth: 4'

Northstar Island

Drilling & Production

65,000 BOPD

Constructed: 2000

Work Area Acres: 6

Water Depth: 40'



Liberty Island

Drilling & Production

65,000 BOPD

Constructed: 2017

Work Area Acres: 9.3

Seafloor Area Acres: 24

Water Depth: 19'

Subsea Pipe Distance: 5.6 miles

Onshore Pipe Distance: 1.5 miles



Thank You!

